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ABSCESS OF BOTH FRONTAL SINUSES AND OF ETHMOID BONE.

OPERATION AND COMPLETE RECOVERY.

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ABSCESS OF BOTH FRONTAL SINUSES AND OF ETHMOID BONE—OPERATION AND COMPLETE RECOVERY.

The following case of abscess of both frontal sinuses and of the ethmoid bone is presented not only on account of its comparative rarity and extensive absorption of bone tissue, but also on account of the long time which elapsed between the occurrence of the injury and the appearance of permanent distension of the sinus, as well as the very rapid recovery.

Jane L., aged fifty-three, a widow, presented herself for treatment on Oct. 27th, 1884. Fourteen years before, while engaged in chopping wood, a piece of large size struck her on the bridge of the nose and median line of the forehead, with such force as to knock her down. It made an ugly lacerated wound about three inches long, running from a point a little to the right of the median line of the forehead and midway between the superior orbital margin and the hairy scalp, downwards to the left, across the bridge of the nose, and ending at the end of the left nasal bone on the side of the nose. There was a fracture of both nasal bones, and a slight deviation of the septum to the right side. There was considerable swelling produced in the soft parts, the right eye was entirely closed by infiltration into the eyelids, and there was a rather profuse purulent discharge from the wound for several weeks. The wound itself did not close for about seven weeks. Since then the patient has at times suffered from a sense of distension or pressure over the eyes, which, after lasting a few days, would subside. Nothing unusual occurred until about four years ago, when the patient first noticed a somewhat hard,

elastic swelling at the upper and inner angle of the right orbit, which at first could by pressure be caused to disappear, but which gradually increased in size, extending downwards and along the superior orbital margin, outwards towards the temple, until the eye was entirely closed by the swelling and the complete ptosis. At somewhat long intervals, there would be all the signs of an acute inflammation in the lid and neighboring tissues accompanied by great pain, but these symptoms always subsided under the application of continuous heat.

When I first saw the patient, there was complete ptosis of the right upper lid, but without any infiltration. In the upper and inner angle of the orbit was an elastic, firm, resisting tumor, which could be traced some distance backward beneath the superior orbital margin into the orbit. The tissues along the orbital margin and over the glabella and bridge of the nose were very markedly thickened. The scar of the old injury was plainly visible. On lifting up the lid, the eye was found to be pushed downwards, outwards and forwards, and to be almost completely immovable. Vision was reduced to $\frac{20}{70}$ in this eye and was normal in the other eye. A diagnosis was made of distension of the frontal sinus; and the patient was told that an operation must be done in order to relieve her, to which she at once consented.

On October 31, 1884, the patient was placed under the influence of ether, and a free incision nearly two inches long was made through the upper lid, just beneath the orbital arch and parallel with it. As soon as the knife had cut through the skin and fascia, it entered a deep cavity, and sank out of sight up to the haft. A very large quantity of fetid pus at once poured out and covered everything in the vicinity, and as the wound was enlarged, it continued to well up from the deeper parts, assisted by pressure with the finger in the orbit, and by turning the head of the patient upon the right side, until between two and three ounces of pus had been evacuated, as nearly as could be estimated. After all the pus had been removed, the cavity was washed out with a five per cent. solution of carbolic

acid, all of which came out again through the wound, none passing down into the nose. A careful examination was then made with the probe and finger, and it was found that the right frontal sinus was enormously distended; its floor had been eroded and worn away by pressure at the superior orbital arch, nothing remaining but a very much thinned periosteum. The bony partition between the two frontal sinuses had disappearad in part, so that the probe and the finger could be carried into the sinus of the opposite side. The carious and purulent degeneration had extended into the ethmoid bone, which in the course of years had become an immense abscess, and the plate forming the inner wall of the orbit had been in part worn away, so that nothing separated the pus-cavity in the ethmoid bone from the orbit except the periosteum. All attempts to discover the existence of any connection with the superior nasal meatus, by means of the probe and syringing, failed; but this examination revealed the presence of numerous osteophytes, mainly situated in the cavity of the ethmoid and left frontal sinus. As many of these as could be reached with the finger or forceps were broken off, and then the entire cavity was again carefully washed with a solution of mercuric bichloride, one part to two thousand (1 to 2000). A small rubber drainage-tube, properly fenestrated, was then introduced, the external wound and neighboring parts carefully sponged with the above solution, and covered with several layers of iodoform gauze, and the patient placed on the right side. For the first week the cavity was washed out every three hours, but afterwards this was done only twice a day, and subsequently only once a day. After a few days the drainage-tube was found not to act well, as it became clogged; it was therefore removed and drainage was carried on by a few strands of long fibred lint ravellings. There was a slight rise of temperature on the day after the operation, and considerable swelling of the lids and region of the eyebrow, but hot applications and frequent syringing of the cavity soon removed these symptoms, and from this time the filling of the cavity and the recovery of the patient was uninterrupted.

The patient was discharged on December 16th, 1884, a little more than six weeks after the operation, with the wound entirely healed. The cavity had apparently filled from the bottom, and as it filled, the infiltration in the soft parts gradually disappeared, so that when the edges of the wound healed, the resulting cicatrix had already retreated somewhat beneath the orbital arch, and the patient began to regain some power over the levator palpebræ muscle. The patient was not seen again until February 2nd, 1885. At this date there was complete restoration of the position and action of the upper lid, and an entire disappearance of the scar beneath the superior orbital margin. All protrusion of the eye had subsided, and the mobility was completely restored, but the eyeball was still on a plane somewhat lower than that of the opposite side. Vision had improved to $\frac{20}{40}+$, and she had binocular single vision. The fundus of the eye showed nothing abnormal, except a slight discoloration of the temporal half of the right optic disc. The patient complained of a loss of sensation in the course of the supra-orbital nerve, but as this anæsthesia was limited in extent and not very annoying, it was deemed unwise to attempt any operative interference for its improvement.

The pathogenesis of the case is somewhat obscure. The force of the blow was in the direction from below upwards, and the first effect was probably a fracture or dislocation of the nasal bones at their line of union with the frontal bone, or possibly both. The violence of the injury to the bones, complicated by the extensive laceration of the soft parts, probably induced a periostitis, followed by a degenerative osteitis and caries of the nasal process of the frontal bone, which in time opened into the right frontal sinus, and also extended through the thick bony septum in the median line into the frontal sinus of the opposite side. It is possible also that the caries extended along the floor of the right frontal sinus, in a line with the superior orbital margin, and in the course of years ended in complete degeneration and absorption of the bony partition between frontal sinus and edge of the

orbit. All this time the process was extending backwards as well as laterally into the cellular spaces and body of the ethmoid bone, and eventually the orbital plate of the ethmoid was perforated and in great part absorbed.

The patient was again seen on June 17th, 1885, and the recovery was found complete, with perfect restoration of mobility of the lid and eyeball, and a return of the latter to the normal plane.